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RESEARCH ARTICLE

MUCOCELE: A STUDY OF 76 CASES

***Sangle Varsha, A., Bijjaragi Shobha, C., Holani Anuja, Shah Nishat, Biradar Ashwini and Ghule Hrishikesh**

Department of Oral and Maxillofacial Pathology, MIDSR Dental College and Hospital, Latur, Maharashra, India

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ABSTRACT

Background: Mucocele is one of the most common benign soft tissue tumor present in the oral cavity. Histologically, there are of two types – one is extravasation and second one is retention type but the majority are extravasation type.
Aims: The objective is to determine various factors related to mucocele such as role of trauma due, recurrence, duration, and to find out whether there is any role of psychological stress which initiates trauma like lip or cheek biting.
Materials and Methods: 76 cases of mucocele diagnosed at the Department of the Oral Pathology, 2008 and 2013 were reviewed. The clinical data were recorded and histopathologic diagnosis was made.
Statistical Analysis Used: Data analysis tool, Microsoft Office Excel 2007.
Results: A diagnosis of mucocele was established in 76 cases with male predominance. The peak age of occurrence was between 2nd and 3rd decade. The extravasation type (80.26%) was more common than the retention type (19.73%). The most common affected site was lower lip (36.84%). The maximum numbers of mucoceles were asymptomatic (61.84%), and with normal appearing oral mucosa color was seen in (61.84%) compared to bluish coloration. It was also observed that most of the Mucoceles had diameter ranging from 5 to 10 mm. The most common causative factor for the mucocele was trauma 31(40.79%) with (14.47%) recurrence cases.
Conclusion: We conclude that there was male predominance and they were more affected in 2nd and 3rd decade. The lateral side of lower labial mucosa was the commonest site and the trauma due to teeth or lip biting was the major etiological factor for the occurrence of the mucocele.

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INTRODUCTION

Mucoceles is, by definition, a cavity filled with mucus. The term mucocele is derived from a Latin word, mucus and coele means cavity. (Baurmash *et al.*, 2003) Mucus is the exclusive secretory product of the accessory (minor) salivary glands and the more prominent product of the sublingual (major) salivary gland. (Anastassov *et al.*, 2000) Mucocele is seventeenth most common salivary gland lesions seen in the oral cavity. It is the second most common benign soft tissue tumor occurring in the oral cavity (Rashid *et al.*, 2008). The incidence of mucocele is generally high, 2.5 lesions per 1000 patients, frequently in the second decade of life. (Guimarães *et al.*, 2006) Mucoceles are common minor salivary gland lesions clinically characterized by single or multiple, oval to spherical, soft, smooth, translucent, fluctuant nodules, normal pink to blue in color and with various diameters which are generally asymptomatic (Anastassov *et al.*, 2000). Mucoceles are of two types based on the histologic features of the cyst wall: a mucous extravasation is, a pseudocyst, caused due to mechanical trauma to the excretory duct of the gland leading to transection or rupture, with consequent extravasation of mucin into the connective tissue stroma (mucus extravasation phenomenon) and formed by mucous pools surrounded by granulation tissue. (Granholm *et al.*, 2009 and Baurmash *et al.*, 2003) The mucus extravasation triggers a secondary inflammatory reaction. (Granholm *et al.*, 2009) And mucous retention cyst might be retained in the duct and/or acinus as a result of duct obstruction by sialolith or strictures (mucus retention phenomenon), with an epithelial lining (Robinson L and Hjorting-Hansen, 1964). The Mucoceles located on the floor of mouth are termed as *'ranula'*, which usually arises in the body of the sublingual gland and occasionally in the ducts of Rivini or in the Wharton's duct.

****Corresponding author: Sangle Varsha, A.,***
Department of Oral and Maxillofacial Pathology, MIDSR Dental College and Hospital, Latur, Maharashra, India.

(Baurmash *et al.*, 2003) Ranulas are considered a variant of mucoceles and the name is derived from the typical swelling that resembles the air sacs of the frog -'rana tigrina'. (Baurmash *et al.*, 2003) A ranula manifests as a cup-shaped fluctuant bluish swelling on the floor of mouth and tends to be larger than mucoceles located in other regions of the mouth, reaching some centimeters in diameter. In this article, we have discussed etiopathology and clinical aspects of 76 cases of mucocele to evaluate the predilection of age, sex, site, and role of psychological stress apart from trauma due to teeth in the occurrence of mucocele. Aim is also to show the importance of histopathological diagnosis in regards to the recurrence of mucocele.

MATERIALS AND METHODS

The hospital-based retrospective study was conducted by assessing the clinical records from the year 2008 to 2013, available in the archives of the department of histopathologically diagnosed 76 cases of Mucoceles. The permission to undertake this study was obtained from the Institutional Ethics Committee. The study variables included age, gender, type, site, color, etiology, symptoms, dimension of the lesion and recurrence. The findings were recorded from the collected data and all the data were made computerized and subjected to statistical analysis.

The results were analyzed by using chi-square test.

RESULTS

During the 2004–2008 period, a total of 76 cases were diagnosed as mucocele of different types. In this study, we observed that the number of patients affected with Mucoceles were between 15 and 55 years. The mucoceles were highly prevalent in the age group of 15-24 years (31.58%) followed by 25-34 years (27.63%). (Table/Fig:1) In total cases of 76 patients, there were 44 (57.89%) males and 32 (42.11%) females with male predominance. Out of total 76 patients, 61 (80.26%) patients had extravasation type and were highly prevalent in the age group of 15-24 years, whereas 15 (19.73%) patients had retention type of mucocele and were prevalent in the age group of 45-54 years. In total 61 cases of extravasation type, 37were males and 24 were females (Table/Fig.2).

Table 1. Age wise distribution of patients with mucocele

Sr. No.	Age group	No. of Patients	Percentage
1.	15 to 24	24	31.58
2.	25 to 34	16	27.63
3.	35 to 44	21	21.05
4.	45 to 54	14	18.42
5.	≥ 55	01	1.32
	Total	76	100

The sites affected with mucoceles were lower lip 28(36.84%), buccal mucosa 10(13.16 %), dorsal surface of tongue 12(15.79%), ventral surface of tongue 18 (23.68%), floor of mouth 04 (5.26%), upper lip 03 (3.95%) and palate 01 (1.32%). The lower lip was the most commonly affected site by extravasation type, and floor of mouth was the most commonly affected site by retention type of mucocele. (Table/Fig.3)

Table 2. Gender wise distribution of patients with mucocele

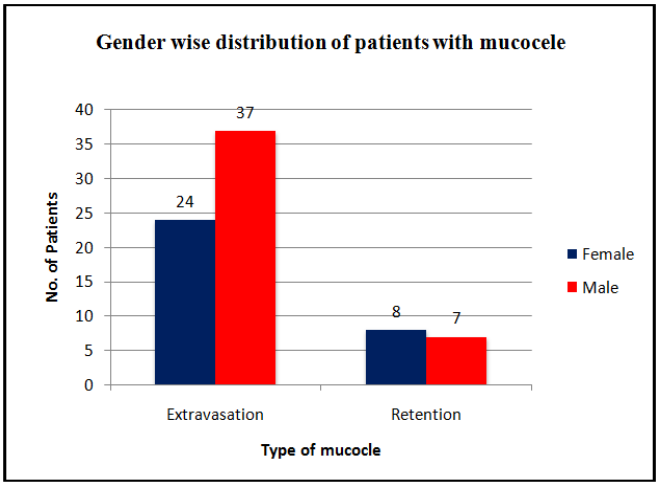


Table 3. Distribution of mucocele patients according to site and type

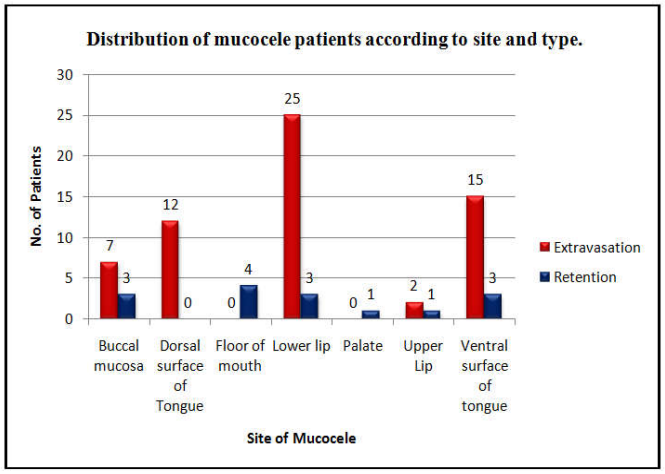
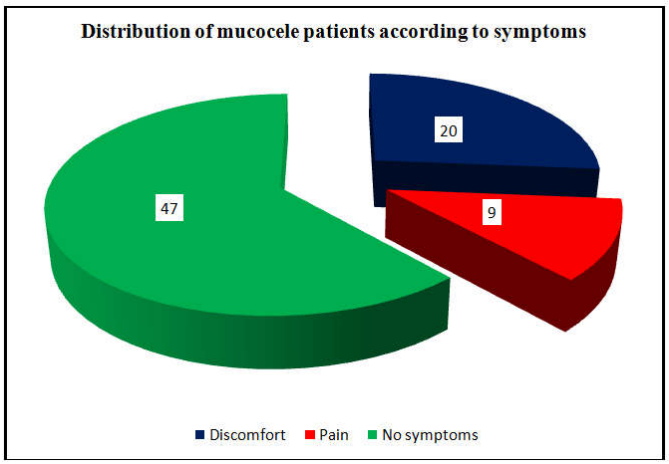


Table 4. Distribution of mucocele patients according to symptoms



In this study, 47 (61.84%) patients were asymptomatic, 20 (26.32%) patients had discomfort and 09 (11.84%) patients experienced pain. (Table/Fig.4)

Table 5. Distribution of mucocele patients according to Colour

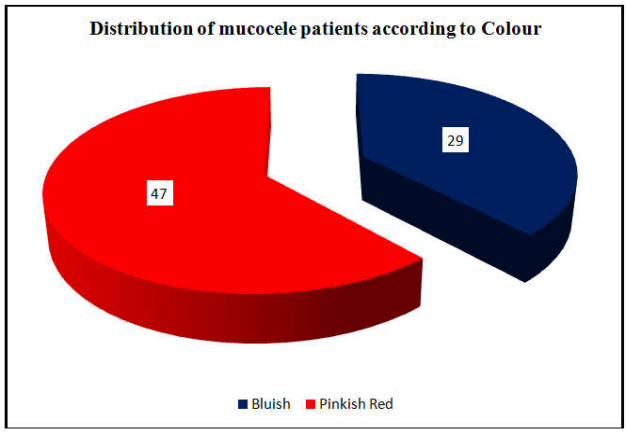


Table 6. Distribution of mucocele patients according to dimensions

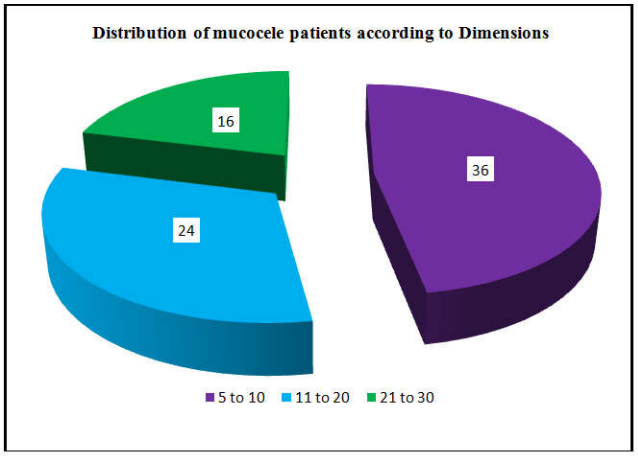
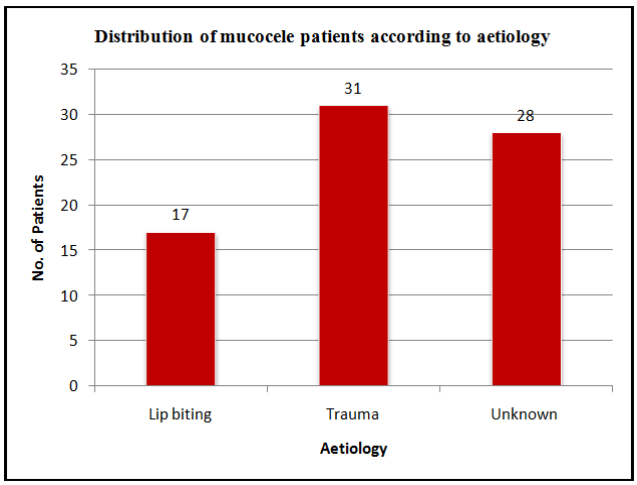
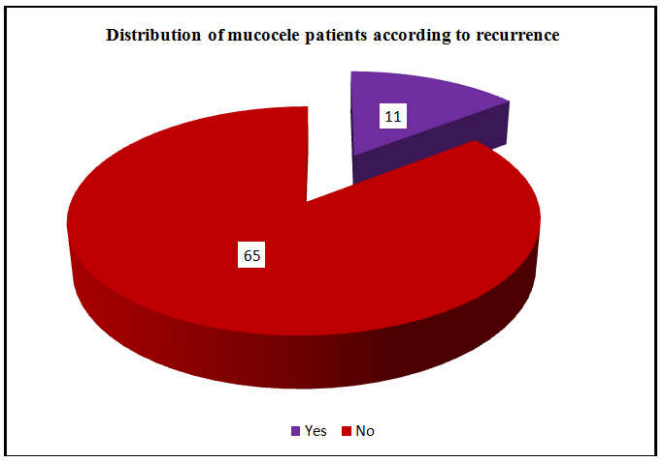


Table 7. Distribution of mucocele patients according to aetiology



In present study, lesion with normal mucosal appearance was seen in 47 (61.84%) cases rather than the bluish color which was seen in only 29 (38.16%) cases. (Table/Fig.5) In our study, it was also observed that the diameter of mucoceles measured between 5 mm and30 mm. The Mucoceles in 36 (47.37%) patients measured from 5 to 10 mm, 24 (31.58%) patients had 11-20 mm and 16 (21.05%) patients had 21-30 mm (Table/Fig.6). We viewed that the causative factors for the mucoceles were lip biting 17 (22.37%), trauma 31(40.79%) and numerous lesions 28(36.84%) had no cause (Table/Fig.7).

Table 8. Distribution of mucocele patients according to recurrence



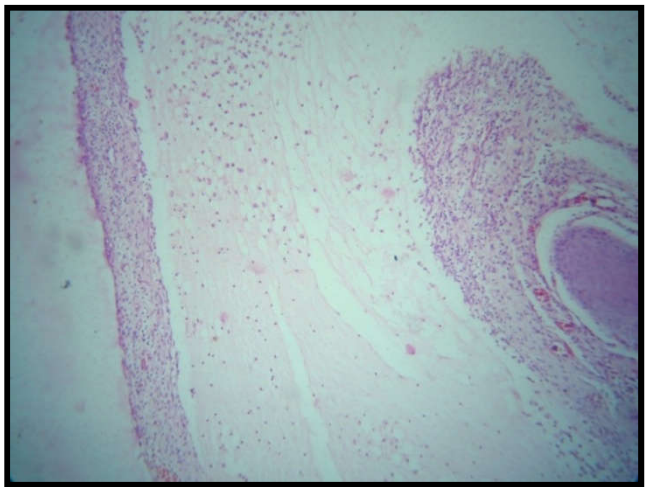


Fig. 1. Histopathological picture of H&E stained section shows cystic cavity lined by compressed granulation tissue. The cavity contains pulled mucin at places, mucinophages and plasma cells and lymphocytes

An interesting finding was seen in 11(14.47%) cases which showed recurrences varying from one to multiple recurrences (Table/Fig. 8) and from them most of the cases were of extravasation type, i.e., 9 (11.84%) cases.

DISCUSSION

Mucocele is a common a benign cystic lesion of the oral mucosa that results from an alteration of minor salivary glands due to a mucous accumulation. (Bagán Sebastián *et al.*, 1990) Yamasoba *et al.* (1990) highlighted two crucial etiological factors in mucoceles: trauma and obstruction of salivary gland ducts. Mainly physical trauma can cause spillage of salivary secretion into surrounding submucosal tissue. Later inflammation may become obvious due to stagnate mucous. (Boneu-Bonet *et al.*, 2005) It is a self-limiting mucous containing cyst of salivary glands, with relatively rapid onset and with fluctuating size. (Rashid *et al.*, 2008) The duration of

the lesion is not constant; it varies from a few days to 3 years. (Bentley and Barankin, 2003) These lesions are devoid of epithelial lining and are also termed as: Superficial mucoceles and classical mucoceles. Superficial mucoceles are located under the mucous membrane and classical mucoceles are seen in the upper submucosa. (Baurmash *et al.*, 2003) Due to its close similarity of clinical presentation with other salivary gland diseases; clinical knowledge as well as the determination of aspects related to the etiopathogenesis of these lesions, is necessary for the correct diagnosis and for the indication of appropriate treatment.

Mucoceles are believed to affect patients of all ages, with the highest incidence in the second decade of life. (Daniels and Mohammed, 2005) We had noticed that mucocele was most predominant in male and occurred frequently in 2nd to 3rd decade with majority in 2nd decade of life which was also reported by Robinson *et al.* (1964), Jani *et al.* (2010) and Mathew *et al.* (2008). In contrast, with Hayashida *et al* describe a prevalence of mucocele in only in females. Mucoceles occur in varying locations on the oral mucosal surfaces overlying accessory minor salivary glands. The most frequent occurrence of the mucocele is lateral aspect of the lower lip. This finding is similar to Jani *et al.* (2010) and More *et al.* (2014) Lower lip, a trauma-prone site in the present study also supports the role of trauma as an etiologic factor either in the form of sharp tooth cusp or biting habit where the psychological stress appeared as an initiating factor for the biting trauma. Although obstruction may play a role in the etiology of the mucocele. (Chaudhry *et al.*, 1960) However, rare cases of mucoceles involving the upper lip, palate, retromolar region, buccal mucosa, lingual frenum and dorsal tongue have been reported.

The color of mucoceles ranged from deep blue to the normal color of oral mucosa (pink). The clinical presentation of these lesions depends upon their depth within the soft tissue and the degree of keratinisation of the overlying mucosa. Superficial lesions present as raised soft tissue swelling having bluish color; blue color is caused by vascular congestion and cyanosis of the tissue above and accumulation of the fluid below while the deeper lesions are more nodular, lack the vesicular appearance, and having normal mucosal color. (Koudelka, 1991) In our study, we got similar findings to Jani *et al.* (2010) Martins-Filho, *et al.* (2011) and More *et al.* (2014).

Mucoceles rarely cause significant problems. Discomfort, interference with speech, mastication, swallowing and external swelling may occur depending on the size and location of mucoceles. (Baurmash *et al.*, 2003) All these symptoms were present in our study with varying intensity. These findings simulated with the studies of Bagán *et al.* (1990). Re Cecconi *et al.* (2010). Mucoceles of minor salivary glands are rarely larger than 1.5 cm in diameter and are always superficial. Mucoceles found in deeper areas are usually larger. (Wall and Wilson, 1992) It was significantly noted in this study that most of the mucoceles had diameter ranging from 5 to 14 mm, which simulated with the findings of Sebastian *et al.* (1990).
Trauma and obstruction of salivary gland ducts are considered crucial factors. In this study, majority of mucocele cases showed trauma as a etiological factor. While remaining cases had no known cause and might indicate that the other factors may play a role in their pathogenesis apart from trauma. Our results are according to the study of Jani *et al.* (2010) and Catone *et al.* (1969). Although there is good prognosis of mucocele, in the present study the recurrence rate appears somewhat higher seen in 11 (14.47%) cases; this might be due to partial removal of the lesional tissue or because of the psychological stress, the biting habit may not be discontinued.

Mucocele should be differentiated from lipoma, oral hemangioma, oral lymphangioma, benign or malignant salivary gland neoplasms especially mucoepidermoid carcinoma, venous varix, irritational fibroma, soft tissue abscess, cysticercosis, pyogenic granuloma, etc. The superficial mucoceles may be confused with cicatricial pemphigoid, bullous lichen planus, etc. (Anastassov *et al.*, 2000 and Baurmash, 2002). Mucoceles are more frequently treated by surgical excision of the lesion and careful dissection of the adjacent minor salivary glands affected. However, recurrence can occur and a new surgical intervention taking the above mentioned care is necessary (Anastassov *et al.*, 2000).

Conclusion

Mucocele is the most common benign self-limiting condition of the oral mucosa. One of the most common sites of its occurrence is the lower lip mostly due to trauma or lip biting habit. Majority of the cases can be diagnosed clinically however sometimes biopsy is required to rule out any other types of neoplasms. Different types of treatment options are available but the CO2 laser treatment shows more benefits with less relapses.

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